

I claim:

1. A subcutaneous port comprising:

a port corpus elongated about an axis and comprising an inlet defining an opening at one end of the port corpus, an outlet having an outlet opening at a lengthwise opposing end of the port corpus, and a chamber defined therebetween, one of the inlet and the inlet opening comprising a first connecting member and one of the outlet and the outlet opening comprising a second connecting member;

a septum;

a removable septum retainer comprising a third connecting member being removably engaged with the first connecting member so as to dispose the septum in a position to occlude the port corpus inlet opening; and

a removable conus extending along the axis, the removable conus comprising an inlet end having an inlet opening at one end of the removable conus, an outlet connector having an outlet opening at an opposing lengthwise end of the removable conus, and a channel extending therebetween, the removable conus inlet end further comprising a fourth connecting member being removably engaged with the second connecting member,

wherein the port corpus inlet opening is canted inwardly along the axis of the port corpus.

2. A subcutaneous port according to claim 1,

wherein the axis is a central axis common to the port corpus and the removable conus.

3. A subcutaneous port according to claim 1, further comprising:

a fifth connecting member provided adjacent an exterior surface of one of the removable conus and the port corpus; and

a removable hollow casing extending along the axis, the removable hollow casing comprising a sixth connecting member being removably engaged with the fifth connecting member.

4. A subcutaneous port according to claim 3,

5 wherein the removable septum retainer comprises a flanged annulus, and wherein the septum is disposed at least partially within the removable septum retainer annulus.

5. A subcutaneous port according to claim 3,

10 wherein a gap is defined between an exterior surface of the removable conus outlet connector and an opposing interior surface of the removable hollow casing, and wherein the gap corresponds substantially to a wall thickness of a catheter so as to permit securement of a catheter between at least a portion of an exterior surface of the removable conus outlet connector and an opposing interior surface of the removable hollow casing.

6. A subcutaneous port according to claim 4,

15 wherein an outlet end of the removable hollow casing extends beyond the outlet opening of the removable conus outlet connector.

7. A subcutaneous port according to claim 4,

wherein an outer surface of each of the port corpus and the removable casing is substantially curvilinear in a cross-section taken along the axis.

20 8. A subcutaneous port according to claim 4,

wherein an outer surface of each of the port corpus and the removable casing is one of substantially circular and substantially elliptical in a cross-section taken along the axis.

9. A subcutaneous port according to claim 5,

wherein an outer surface of the port corpus is substantially cylindrical along the axis and wherein an outer surface of the removable casing is frustoconical along at least a portion thereof along the axis.

10. A subcutaneous port according to claim 9,

5 wherein the port corpus inlet opening is canted inwardly with respect to the port corpus within a range between 20° and 70°.

11. A subcutaneous port according to claim 10,

wherein each of the port corpus, removable port conus, removable septum retainer, and removable hollow casing comprises at least one of a surgical grade stainless steel, titanium, and  
10 tantalum.

12. A subcutaneous port according to claim 4,

wherein the port corpus inlet opening first connecting member comprises a thread formed on an interior surface of the inlet opening,

wherein the removable septum retainer third connecting member comprises a thread  
15 formed on an exterior surface of the flanged annulus, and

wherein the first connecting member thread and the third connecting member thread are matingly engageable.

13. A subcutaneous port according to claim 4,

wherein a distal wall of the chamber is angled inwardly, away from the septum.

20 14. A subcutaneous port according to claim 4,

wherein a distal wall of the chamber is curved at at least upper and lower extents thereof.

15. A subcutaneous port according to claim 13,

wherein the port corpus outlet comprises an annulus, an interior surface of the annulus defining the outlet opening,

wherein the second connecting member comprises a thread formed adjacent the interior surface of the annulus,

5 wherein the removable conus inlet comprises an annulus, an interior surface of the annulus defining a portion of the channel and an exterior surface bearing the fourth connecting member, the fourth connecting member comprising a thread,

wherein the fifth connecting member comprises a thread formed adjacent an exterior surface of the port corpus outlet annulus,

10 wherein the sixth connecting member comprises a thread formed adjacent an interior surface of the removable hollow casing,

wherein the second connecting member thread and the fourth connecting member thread are matingly engageable, and

15 wherein the fifth connecting member thread and the sixth connecting member thread are matingly engageable.

16. A subcutaneous port according to claim 1, further comprising:  
a catheter attached to the removable conus outlet connector.

17. A subcutaneous port according to claim 15, further comprising:  
a catheter attached to the removable conus outlet connector.

20 18. A method of preparing for implantation a subcutaneous port comprising the steps of:  
selecting a port corpus, a removable septum retainer, a septum, a removable port conus, and a catheter for assembly, said port corpus being elongated about an axis and comprising an inlet defining an opening at one end of the port corpus, an outlet having an outlet opening at a

lengthwise opposing end of the port corpus, and a chamber defined therebetween, one of the inlet and the inlet opening comprising a first connecting member and one of the outlet and the outlet opening comprising a second connecting member, said removable septum retainer comprising a third connecting member being removably engaged with the first connecting member so as to  
5 dispose the septum in a position to occlude the port corpus inlet opening; said removable conus extending along the axis, the removable conus comprising an inlet end having an inlet opening at one end of the removable conus, an outlet connector having an outlet opening at an opposing lengthwise end of the removable conus, and a channel extending therebetween, the removable conus inlet end further comprising a fourth connecting member being removably engaged with  
10 the second connecting member, and said port corpus inlet opening being canted inwardly along the axis of the port corpus;

disposing the septum between the port corpus inlet opening and the removable septum retainer to occlude an inlet opening of the port corpus;

connecting the removable septum retainer to the port corpus by connecting the first  
15 connecting member to the third connecting member;

connecting the removable conus to the port corpus by connecting the fourth connecting member and the second connecting member; and

connecting the catheter to the removable conus outlet connector.

19. A method of preparing for implantation a subcutaneous comprising the steps of:

20 selecting a port corpus, a removable septum retainer, a septum, a removable port conus, a removable hollow casing, and a catheter for assembly,

said port corpus being elongated about an axis and comprising an annular inlet defining an opening at one end of the port corpus, an annular outlet having

an outlet opening at a lengthwise opposing end of the port corpus, and a chamber defined therebetween, said port corpus further comprising a first threaded connection on an interior surface of the inlet opening, a second threaded connection on an interior surface of the outlet opening, and a fifth threaded connection on an exterior surface of the port corpus annular outlet;

said removable septum retainer comprising a flanged annulus and a third threaded connection formed on an exterior surface of the flanged annulus to matingly engage the first threaded connection so as to dispose the septum in a position to occlude the port corpus inlet opening;

said removable port conus extending along the axis, the removable conus comprising an annular inlet end having an inlet opening at one end of the removable conus, an outlet connector having an outlet opening at an opposing lengthwise end of the removable conus, and a channel extending therebetween, the removable conus inlet end further comprising a portion of said channel defined by an interior surface thereof and a fourth threaded connection on an exterior surface thereof which is removably engageable with the second threaded connection, and said port corpus inlet opening being canted inwardly along the axis of the port corpus; and

said removable hollow casing extending along the axis, the removable hollow casing comprising a sixth threaded connection formed on an interior surface of the removable hollow casing to be removably engageable with the fifth threaded connection;

disposing the septum between the port corpus inlet opening and the removable septum retainer to occlude an inlet opening of the port corpus;

connecting the removable septum retainer to the port corpus by screwing the first connecting member and the third connecting member together;

5 connecting the removable conus to the port corpus by screwing the fourth connecting member and the second connecting member together;

connecting the catheter to the removable conus outlet connector, and

connecting the removable hollow casing to the port corpus by screwing the fifth connecting member and the sixth connecting member together.

10 20. A method for implanting into an animal a subcutaneous port prepared in accord with claim 18 comprising the steps of:

making an incision in the skin of the animal;

inserting the subcutaneous port beneath the skin;

positioning a distal end of the catheter at a predetermined site within the animal; and

15 closing the incision.

21. A method for implanting into an animal a subcutaneous port prepared in accord with claim 20, wherein said animal is a rodent.

22. A method for implanting into an animal a subcutaneous port prepared in accord with claim 21, wherein said step of making an incision in the skin of the animal comprises making an  
20 incision in the skin of the rodent in one of a posterior dorsal location, a posterior lateral location, and a posterior ventral location.

23. A method for implanting into an animal a subcutaneous port prepared in accord with claim 22, wherein said step of making an incision in the skin of the animal comprises making an

incision in the skin of the rodent in a generally posterior dorsal location with at least a portion of the incision disposed adjacent a base of the tail, and wherein said step of inserting the subcutaneous port beneath the skin comprises inserting the subcutaneous port with the septum adjacent the base of the tail.

- 5    24.    A method for implanting into an animal a subcutaneous port prepared in accord with claim 19 comprising the steps of:

making an incision in the skin of the animal;

inserting the subcutaneous port beneath the skin;

positioning a distal end of the catheter at a predetermined site within the animal; and

10    closing the incision.

25.    A method for implanting into an animal a subcutaneous port prepared in accord with claim 24, wherein said animal is a rodent.

26.    A method for implanting into an animal a subcutaneous port prepared in accord with claim 25, wherein said step of making an incision in the skin of the animal comprises making an  
15    incision in the skin of the rodent in a generally posterior dorsal location.

27.    A method for implanting into an animal a subcutaneous port prepared in accord with claim 26, wherein said step of making an incision in the skin of the animal comprises making an incision in the skin of the rodent in a generally posterior dorsal location with at least a portion of the incision disposed adjacent a base of the tail, and wherein said step of inserting the  
20    subcutaneous port beneath the skin comprises inserting the subcutaneous port with the septum adjacent the base of the tail.

28.    A method for implanting an elongate subcutaneous port into a rodent comprising the steps of:



making at least one of a longitudinal and a transverse incision in the skin of the rodent in a generally posterior dorsal location with at least a portion of the incision disposed adjacent a base of the tail,

inserting the subcutaneous port beneath the skin with a septum borne by the elongate  
5 subcutaneous port being disposed adjacent the base of the tail;

positioning a distal end of a catheter borne by the elongate subcutaneous port at a predetermined site within the animal; and

closing the incision.

29. A subcutaneous port comprising:

10 an elongated port corpus having a proximal end defining a septum receiving opening angled in relation to a longitudinal axis of said port corpus, a substantially cylindrical body, and a substantially frustoconical conus having an outlet opening provided at a distal end thereof, said substantially cylindrical body defining a chamber along at least a portion of a length thereof and  
15 said substantially cylindrical body and said substantially frustoconical conus collectively defining a passage to permit passage of fluid between the chamber and the outlet opening,  
a septum provided in said septum receiving opening;  
a septum retainer for retaining said septum in said port corpus; and  
a catheter connected to said port corpus passage.